

Docket No. 201ES034A
Serial No. 10/694,558
June 19, 2006
Page 11

REMARKS

AS TO THE 35 U.S.C. §112 REJECTIONS

Claims 47 and 48 were rejected under 35 U.S.C. §112, first paragraph because Applicants failed to describe how the addition of an isocyanate terminated prepolymer serves to crosslink the TPU. Applicant's respectively traverses this rejection. It is well known in the art to one skilled in the art of TPU that adding a prepolymer with isocyanate terminal groups or adding a free isocyanate will crosslink the TPU. The crosslinking can occur when the isocyanate reacts with a reactive -OH group. Even in a fully formed TPU, there is some unreacted -OH groups. Also, when TPU is melt processed, the chain breaks as a result of the reversible nature of the urethane linkages, this chain breaking creates additional reactive groups, which allows the isocyanate groups in the crosslinking agent a site to react. This is well known to those skilled in the TPU art. Applicants have described the addition of a crosslinking agent, amounts added, and even the commercial name of the crosslinking agent. It is believe that Applicants are not required to describe the chemical reactions involved in the crosslinking reaction. The Examiner is respectfully requested to remove this rejection.

Claims 1-21, 22-43, and 45-50 were rejected under 35 U.S.C. §112, first paragraph, because the claims recited a polyisocyanate, when only a diisocyanate were shown in the Examples. The claims have been amended to recite a diisocyanate. It is believed the amended claims are now in compliance with 35 U.S.C. §112 and the Examiner is requested to remove this rejection.

Claims 9-12 and 37-43 were rejected under 35 U.S.C. §112, first paragraph, because only polyethylene glycol would give the moisture vapor transmission and surface resistivity in the TPU. Claims 9-12 and 37-43 have now been amended to recite polyethylene glycol as the hydroxyl terminated polyether intermediate. As a result of the amendment, the Examiner is requested to remove this rejection.

Claims 6, 22, 27, 29, 44 and 51 were rejected under 35 U.S.C. §112, first paragraph, because the improper chemical name was used for MDI. Applicants have amended the claims to recite the proper name for MDI. As shown by the attached printout from the National Chemical

Docket No. 201ES034A
Serial No. 10/694,558
June 19, 2006
Page 12

Inventories, it can be seen that MDI is known by about 40 different chemical names. The name now shown in the claims is used on page 6, paragraph 21, line 8, of the specification. As a result of correct name for MDI now recited in the amended claims, the Examiner is requested to remove this rejection.

DOUBLE PATENTING REJECTION

A terminal disclaimer is enclosed. This application and Serial No. 10/880,001 are commonly owned as evidenced by the assignment records in the USPTO (Reel/Frame 014639/0852 and Reel/Frame 015106/0014 respectively). The attached terminal disclaimer should overcome this rejection.

AS TO 35 U.S.C. §102 REJECTION

Claims 1-36 were rejected under 35 U.S.C. §102(b) as being anticipated by Shah ('852). Claims 1-36 have been amended to recite a mole ratio of chain extender to polyether intermediate, which is outside the range taught by Shah. The basis for this amendment can be found on page 6, paragraph 20, of the specification. For the reactants polyethylene glycol, chain extender and MDI, the mole ratio used by Applicants amended claims do not meet the formula (a) shown by Shah in the abstract.

The amended claims are believed to be outside the teachings of Shah and the Examiner is requested to reconsider the 102 rejection.

Claims 1, 3, 5-8, 11-19, 23, 30-37 and 39 were rejected under 35 U.S.C. 102(b) as being anticipated by WO 00/23492. The WO reference teaches using as the chain extender a combination of 1,4 butanediol and a small amount of an araliphatic diol. Applicants do not use the aliphatic diol, such as 1,4 butanediol. Also, Applicants use an aromatic glycol for the chain extender. In the amended claims, Applicants aromatic glycol is present in larger amounts than the araliphatic diol used in the WO reference.

The amended claims are believed to be outside the disclosure of WO 00/23492 and the Examiner is requested to reconsider this 102 rejection.

Docket No. 201ES034A
Serial No. 10/694,558
June 19, 2006
Page 13

Claims 1, 4-7, 13-21, 23-25, 27-30, 32-36 and 45-49 were rejected under 35 U.S.C. §102(b) as being anticipated by Foss ('233).

The reference Foss uses a diisocyanate capped prepolymer which is later chain extended. The level of diisocyanate used by Foss is 2 moles of diisocyanate per 1 mole of polyol (col. 2, lines 48-50). This level is more moles of isocyanate than that used by Applicant.

The claims have been amended to recite that the TPU of Applicants invention is made by a one-shot process. The basis for this amendment is found on page 8, paragraph 0027.

The amended claims do not read on the reference Foss and the Examiner is requested to reconsider.

AS TO THE 35 U.S.C. §103(a) REJECTION

Claims 1-44 were rejected under 35 U.S.C. §103(a) as being unpatentable over WO 00/23492 in view of Henn ('316). The reference Henn requires the mole ratio of isocyanate to be greater than 1.1 (see Abstract). Applicants have amended their claims to require a mole ratio of 0.95 to 1.05 of isocyanate per mole of polyol plus chain extender. The basis for this amendment is found on page 6-7, paragraph 0023, of the specification. The reference WO 00/23492 combined with Henn do not suggest to one skilled in the art to make Applicants invention. The polyurethane of Henn is a liquid prepolymer which is applied to fabric by a doctor blade. The polyurethane used by Applicants is not a prepolymer but rather a fully formed TPU polymer.

Claims 2, 3, 8-12, 22, 26, 31, 50 and 51 were rejected under 35 U.S.C. §103(a) as being unpatentable over Foss ('233) in view of Henn ('316), Kolycheck et al. ('053), or WO 00/23492, and further in view of Yamaguchi et al. ('442) or Kosinski et al. ('901).

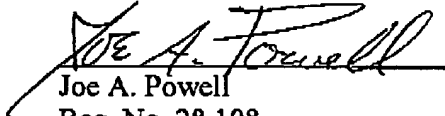
The amended claims are believed to be unobvious over the references cited. The claims have been amended to recite the TPU is made by a one-shot process, the mole ratio of the chain extender used to the polyether intermediate has been recited, as well as the mole ratio of the diisocyanate to the total moles of polyether intermediate and chain extender.

The cited references do not teach nor suggest this combination of ingredients and levels to give the unexpected properties shown by Applicants examples.

Docket No. 201ES034A
Serial No. 10/694,558
June 19, 2006
Page 14

It is believed the 102 and 103 and 112 rejections have been traversed by the amended claims. The Examiner is respectfully requested to reconsider and allow the amended claims.

Respectfully submitted,


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201ES034Aamendment.doc

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CAS REGISTRY NUMBER:

101-68-8

EINECS No. 202-966-0

ENCS No. 4-118X

For ENCS chemical class or category name, refer to ENCS No. 4-118

ECL Serial No. KE-12080

SWISS No. G-3605

ISRAEL No. 63.1

ECL Toxic Chemical No. 97-1-423

INVENTORY NAME(S):

Benzene, 1,1'-methylenebis[4-isocyanato- (TSCA, DSL, ENCS, PICCS, ASIA-PAC)

Diisocyanate de 4,4'-methylenediphenyle (French) (DSL)

4,4'-methylenediphenyl diisocyanate (EINECS) -

diisocyanate de 4,4'-methylenediphenyle (French) (EINECS)

4,4'-Methylenediphenyldiisocyanat (German) (EINECS)

diisocianato de 4,4'-metilendifenilo (Spanish) (EINECS)

Benzene, 1,1'-methylenebis[4-isocyanato- (AICS)

Diphenyl methane diisocyanate (ECL)

Diphenylmethane 4,4'-diisocyanate (ECL)

Benzene, 1,1'-methylenebis[4-isocyanato- (SWISS)

DIPHENYLMETHAN-4,4'-DIISOCYANAT (German) (SWISS)

4,4-DIPHENYLMETHANE DIISOCYANATE (PICCS)

DIPHENYLMETHYL DIISOCYANATE (PICCS)

METHYLENE BISPHENYL ISOCYANATE (PICCS)

P,P'-METHYLENEBIS(PHENYL ISOCYANATE) (PICCS)

METHYLENE-DIPHENYLENE DI-ISOCYANATE (M.D.I.) (PICCS)

MDI (PICCS)

DIPHENYL METHANEDIISOCYANATE (PICCS)

BIS(PHENYLISOCYANATE), 4,4'-METHYLENE- (PICCS)

BIS[1-ISOCYANATOBENZENE], 4,4'-METHYLENE- (PICCS)

BIS(4-ISOCYANATOPHENYL)METHANE (PICCS)

Diphenylmethane diisocyanate (MDI) (ISRAEL)

OTHER NAME(S):

1,1'-Methylenebis[4-isocyanatobenzene]

4,4'-Bis(isocyanatophenyl)methane

4,4'-Diisocyanatodiphenylmethane

4,4'-Diphenylmethane diisocyanate

4,4'-Diphenylmethane diisocyanate (MDI)

4,4'-MDI

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4,4'-Methylenebis(isocyanatobenzene)
4,4'-Methylenebis(phenyl isocyanate)
4,4'-Methylenedi(phenyl isocyanate)
4,4'-Methylenedi-*p*-phenylene diisocyanate
4,4'-Methylenediphenyldiisocyanate
4,4'-Methylenediphenylene isocyanate
Benzene, 1,1'-methylenebis[4-isocyanato-
Benzene-, 1,1'-methylenebis[4-isocyanato-
Bis(1,4-isocyanatophenyl)methane
Bis(*p*-isocyanatophenyl)methane
Di(4-isocyanatophenyl)methane
Diphenylmethane 4,4'-diisocyanate
Diphenylmethane diisocyanate
Diphenylmethane-4,4'-diisocyanate
Diphenylmethylene diisocyanate
Isocyanic acid, diphenylmethylene ester
Isocyanic acid, methylenedi-*p*-phenylene ester
Methylene diphenyl diisocyanate
Methylenebis(4-isocyanatobenzene)
Methylenebis(4-phenyl isocyanate)
Methylenebis(4-phenylene isocyanate)
Methylenebis(*p*-phenyl isocyanate)
Methylenebis(*p*-phenylene isocyanate)
Methylenebis(phenylisocyanate)
Methylenebis(phenylisocyanate) (MDI)
Methylenebis-*p*-phenylene diisocyanate
Methylenebisphenylene diisocyanate
Methylenebisphenylene diisocyanate, 4,4'-
Methylenedi-*p*-phenylene diisocyanate
Methylenedi-*p*-phenylene isocyanate
Monomeric 4,4'-methylenediphenyl diisocyanate aerosol
NSC 9596

p,p'-Diphenylmethane diisocyanate

See also Isocyanate

UN 2489 (DOT)

KOREAN TCCL DESIGNATION:

ECL Toxic Chemical No. 97-1-423

SWISS CLASSIFICATION:

Giftliste 1 (List of Toxic Substances 1), 31 May 1999.

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Toxic Category 3.

ISRAEL CLASSIFICATION:

Proposed Israel Hazardous Substances List, 2001. This list has not been finalized.

Classification Regulations: This substance is exempt from reporting under the Hazardous Substances Law of 1993 if the reportable quantity is lower than 250 kg.

Inventory Update Rule (IUR):

This chemical was reported under the TSCA Inventory Update Rule for the following reporting period(s): 1986, 1990, 1994, 1998.

FORMULA:

 $C_{15}H_{10}N_2O_2$ 